

Claims

1. A dialog management system for communication between an enterprise and customers, the system comprising:  
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an incoming dialog manager for receiving information from customers and for writing the information to memory;  
a segmentation manager for operating in real time to read said received  
10 information, to dynamically allocate a customer to a segment, and to provide a segmentation decision; and  
a feedback manager for using said segmentation decision and stored customer data to generate a feedback message for a customer in real  
15 time.
2. A dialog management system as claimed in claim 1, wherein the dialog management system interfaces with a plurality of enterprise sub-systems to perform integrated customer dialog.  
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3. A dialog management system as claimed in claim 1, wherein the incoming dialog manager controls a unified customer profile database on behalf of all of the sub-systems.
- 25 4. A dialog management system as claimed in claim 1, wherein the segmentation manager performs offline segmentation analysis using data retrieved from a customer profile database maintained by the incoming dialog manager.

5. A dialog management system as claimed in claim 1, wherein the incoming dialog, segmentation, and feedback dialog managers achieve real-time closed loop dialog management by pipelining.
- 5 6. A dialog management system as claimed in claim 5, wherein the pipelining involves each manager passing an output to the next manager in turn, and a session controller maintaining a session continuity between an outgoing message from the feedback dialog manner and the incoming dialog manager.
- 10 7. A dialog management system as claimed in claim 1, further comprising a rules editor for user editing of segmentation rules.
8. A dialog management system as claimed in claim 7, wherein there are a plurality of segmentation models, at least some of which are modified by  
15 the rules editor.
9. A dialog management system as claimed in claim 1, wherein the segmentation manager executes a bias computation process, in which bias is determined for each question in a dialog, bias values are  
20 determined for all questions in total, and bias is determined for a model after processing of a plurality of dialogs.
10. A dialog management system as claimed in claim 1, wherein the segmentation manager executes a confidence rating process to  
25 determine a confidence value for a segmentation decision.
11. A dialog management system as claimed in claim 10, wherein said process allocates an importance rating to each question, determines the

importance of each question in the context of the dialog and uses these values to allocate a confidence rating to a set of customer responses.

- 5 12. A dialog management system as claimed in claim 1, wherein the segmentation manager executes a separation process to determine a degree of difference between the segmentation decision and a next segment.
- 10 13. A dialog management system as claimed in claim 12, in which the segmentation manager determines a primary separation between a highest and second segments, and a secondary separation between the second and a third segment and applies boosting in the primary and secondary separation values to determine a separation confidence value.
- 15 14. A dialog management system as claimed in claim 1 wherein the segmentation manager performs clustering for data mining to execute a segmentation model.
- 20 15. A dialog management system as claimed in claim 1, wherein the feedback manager associates pre-set customer questions with segments, and retrieves these in real time in response to receiving a segmentation decision.
- 25 16. A dialog management system as claimed in claim 1, wherein the feedback and the incoming dialog managers download programs to client systems for execution locally under instructions from a customer.

17. A dialog management system as claimed in claim 1, wherein the feedback manager and the incoming dialog managers access a stored hierarchy to generate a display for customer dialog in a consistent format.
- 5 18. A dialog management system as claimed in claim 17, wherein the hierarchy includes, in descending order, subject, category, sub-category, field group, and field for an information value.
- 10 19. A dialog management system as claimed in claim 1, wherein the incoming dialog manager accesses in real time a rules base comprising an editor for user editing of rules for receiving data.
- 15 20. A dialog management system as claimed in claim 1, wherein the system uses a mark-up language protocol for invoking applications and passing messages.
21. A computer program product comprising software code for performing operations of a dialog management system as claimed in any preceding claim when executing on a digital computer.